

## SOI BY OXIDATION OF POROUS SILICON

### ABSTRACT OF THE DISCLOSURE

A method in which a SOI substrate structure is fabricated by oxidation of graded porous Si is provided. The graded porous Si is formed by first implanting a dopant (p- or n-type) into a Si-containing substrate, activating the dopant using an activation anneal step and then anodizing the implanted and activated dopant region in a HF-containing solution. The graded porous Si has a relatively coarse top layer and a fine porous layer that is buried beneath the top layer. Upon a subsequent oxidation step, the fine buried porous layer is converted into a buried oxide, while the coarse top layer coalesces into a solid Si-containing over-layer by surface migration of Si atoms.